

Alexandra Jonko

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EDUCATION

Ph.D. in Atmospheric Science, Oregon State University, Corvallis, OR December 2012

Dissertation: Investigating climate feedbacks across forcing magnitudes and time scales using the radiative kernel technique

Advisor: Dr. Karen Shell

GPA: 3.74 out of 4.0

Diploma in Meteorology, University of Bonn, Bonn, Germany March 2007

Thesis: Effects of land cover change on the tropical circulation in a GCM.

Advisors: Dr. Andreas Hense and Dr. Johannes Feddema (University of Kansas)

GPA: 1.2 on a scale of 1 ("very good") to 5 ("insufficient")

PROFESSIONAL EXPERIENCE

Postdoctoral Research Associate, EES-16: Computational Earth Science

Los Alamos National Laboratory, Los Alamos, NM

2016 - present

Project: Impacts of complex topography on fire spread; improving fire representation in global climate models

Postdoctoral Research Associate, CCS-2: Computational Physics and Methods Division

Los Alamos National Laboratory, Los Alamos, NM

2014 - 2016

Project: Using a reduced order model to quantify uncertainty in climate sensitivity in a Bayesian inference framework

Postdoctoral Research Fellow, Climate & Global Dynamics Division

National Center for Atmospheric Research, Boulder, CO

2012 - 2014

Project 1: Evaluating spread in cloud feedbacks in CMIP5 models using EOF analysis

Project 2: Impact of interval climate variability on climate feedback estimates

Graduate Teaching Assistant, College of Earth, Ocean and Atmospheric Sciences

Oregon State University, Corvallis, OR

2008 - 2009

OC 599: "Math Camp" for incoming graduate students

Fall 2011

Supervised daily homework sessions and graded homework assignments

ATS 320e: Man's Impact on Climate

Spring 2009

Created and graded homework assignments, midterm and final exams

ATS 210e: Introduction to Atmospheric Science

Fall 2008

Graded homework assignments, midterm and final exams

Graduate Research Assistant, College of Earth, Ocean and Atmospheric Sciences

Oregon State University, Corvallis, OR

2007 - 2008

Project: Evaluate validity of linearity assumption of radiative kernels to compute feedbacks under different climate states and for different time scales. Obtained funding for research through NASA Earth and Space Science fellowship, gave several presentations and published two papers.

PUBLICATIONS

Jonko, A., N. Urban and B. Nadiga: Bayesian hierarchical inference of equilibrium climate sensitivity from a combinations of CMIP5 climate models and observational data. *In prep.*

- Goosse, H., J. Kay, K. Armour, A. Bodas-Salcedo, H. Chefner, D. Docquier, **A. Jonko**, P. Kushner, O. Lecompte, F. Massonnet, H.-S. Park, F. Pithan, G. Svensson, V. Varma and M. Vancoppenolle: Beyond radiative feedbacks: a process-oriented perspective on climate feedbacks in polar regions. *In prep for Bull. Am. Meteorol. Soc.*
- Bennett, K.E., J.R. Urrego Blanco, **A. Jonko**, A. Atchley, T. Bohn, N.M. Urban and R. Middleton: Global sensitivity analysis of large-scale simulated water balance indicators under future climate change climate in the Colorado Basin. *Submitted to J. Geophys. Res.*
- Haut, T., C. Ahrens, **A. Jonko**, R. Lowrie and A. Till, 2017: A new multigroup method for cross-sections that vary rapidly in energy. *J.Q.S.R.T.*, **178**, 461-471.
- Weijer, W., M. Veneziani, A. Stoessel, M.W. Hecht, N. Jeffrey, **A. Jonko**, T. Hodos and H. Wang, 2016: Local Atmospheric Response to an Open-Ocean Polynya in a High-Resolution Climate Model. *J. Climate*, DOI: <http://dx.doi.org/10.1175/JCLI-D-16-0120.1>
- Good, P., B. Booth, R. Chadwick, Ed. Hawkins, **A. Jonko** and J.A. Lowe, 2016: Large differences in regional precipitation change between a first and second 2K of global warming. *Nature Communications*, DOI: 10.1038/ncomms13667
- Jonko, A.**, 2015: Warming trends: Adapting to nonlinear change. *Nature Climate Change*, **5**, 103-104.
- Gordon, N.D., **A. Jonko**, P.M. Forster and K.M. Shell, 2013: An Observationally Based Constraint on the Water-Vapor Feedback. *J. Geophys. Res.*, DOI: 10.1002/2013JD020184.
- Jonko, A.**, K. M. Shell, B. M. Sanderson and G. Danabasoglu, 2013: Climate feedbacks in CCSM3 simulations with varying CO2 forcing. Part II: Variation of climate feedbacks and sensitivity with forcing. *J. Climate*, **26**, 2784-2795.
- Jonko, A.**, K. M. Shell, B. M. Sanderson and G. Danabasoglu, 2012: Climate feedbacks in CCSM3 simulations with varying CO2 forcing. Part I: Adapting the linear radiative kernel technique to feedback calculations under a broad range of forcings. *J. Climate*, **25**, 5260-5272.
- Jonko, A.**, A. Hense and J. J. Feddema, 2010: Effects of land cover change on the tropical circulation in a GCM. *Clim. Dyn.*, **35**, 635-649.

HONORS & AWARDS

CGS/Proquest Distinguished Dissertation Award Nominee	2014
NASA Earth and Space Science Fellowship	2009 - 2012
OSU College of Earth, Ocean and Atmospheric Science Wayne V. Burt Award for Academic Excellence in Physical Oceanography and Atmospheric Science	2011
German Academic Exchange Service (DAAD) Scholarship for thesis research abroad	2006

RELEVANT SKILLS

Modeling: LANL HIGRAD/FIRETEC, NCAR Community Atmosphere Model (CAM), Energy Balance Models

Data analysis: Processing and analyzing CMIP3, CMIP5 and CFMIP climate model output. Bayesian inference, EOF analysis, interpolation and filtering, regression analysis, confidence and hypothesis testing.

Programming languages: FORTRAN, NCAR Command Language (NCL), Julia, Python, MPI.

Data Visualization: PyPlot, Panoply, ParaView, gnuplot, GrADS.

SELECT PRESENTATIONS

Disturbance and Sensitivity of a macro-scale hydrologic model in the Colorado River basin. CLEW DR project appraisal, Los Alamos, NM, January 2016 [talk]

Does internal climate variability play a role in climate feedback uncertainty? Los Alamos National Laboratory Computational Science Division Seminar, Los Alamos, NM, June 2014 [invited talk]

Evaluating the spread in cloud feedbacks in CMIP5. NOAA Chemical Sciences Division Seminar, Boulder, CO, May 2014 [invited talk]

Non-linearities in climate feedbacks and radiative kernels. Do they matter? Lawrence Livermore National Laboratory Seminar, Livermore, CA, April 2014 [invited talk]

A broader view of uncertainty in climate sensitivity and feedbacks. George Mason University AOES Seminar, Fairfax, VA, January 2014 [invited talk]

Investigating cloud processes that explain the correlation between subtropical dry-zone relative humidity and climate sensitivity. 18th Annual CESM Workshop, Breckenridge, CO, June 2013 [talk]

Can satellite data be used to constrain climate change feedbacks in GCMs? AGU Fall Meeting, San Francisco, CA, December 2011 [talk]

Do radiative climate feedbacks vary with time scale? Gordon Research Seminar on Radiation and Climate, Colby College, Waterville, ME, July 2011 [talk]

PROFESSIONAL DEVELOPMENT

Guest Lectures

Santa Fe Community College: *Introduction to STEM* Fall 2016

Colorado State University, ATS606: *Introduction to Climate* Spring 2014

University of Colorado, ATOC5600: *Physics and Chemistry of Clouds and Aerosols* Spring 2014

University of Kansas, GEOG104: *Principles of Physical Geography* Fall 2006

Workshop Participation

Sustainable Climate Risk Management (SCRiM) Summer School, Pennsylvania State University, State College, PA, August 2015.

20th Annual Community Earth System Model Workshop, Breckenridge, CO, June 2015.

Keck Institute for Space Studies Summer School: "Using Satellite Observations to Advance Climate Models", California Institute of Technology, Pasadena, CA, September 2014.

Geological Society of America Annual Meeting Workshops: "Teaching & Learning Climate in the Geoscience Classroom" and "Integrating Sustainability into Geoscience Courses", Denver, CO, October 2013.

On the Cutting Edge Workshop: "Preparing for an Academic Career in the Geosciences", University of Nebraska, Lincoln, NE, June 2011.

Keck Institute for Space Studies Workshop: "Climate Feedbacks and Future Remote Sensing Observations", California Institute of Technology, Pasadena, CA, September 2009.

14th Annual Community Climate System Model Workshop, Breckenridge, CO, June 2009.

Professional Memberships

American Geophysical Union (AGU) and the Earth Science Women's Network (ESWN)

SERVICE

Peer Review

Nature Geoscience, Nature Climate Change, Bulletin of the American Meteorological Society, Journal of Climate, Journal of Geophysical Research, Geophysical Research Letters, Biogeosciences

Conference Session and Workshop Organization

AGU Fall Meeting Session "Climate Sensitivity and Feedbacks: New Approaches and Paradigms", Primary Convener in 2015, Co-Convener in 2012, 2013 and 2016.
OSU "Climate Change Talks" Seminar Series Coordinator, Spring 2009.

Departmental Committees

OSU College of Earth, Ocean and Atmospheric Sciences (CEOAS) Promotion and Tenure Committee, student member 2010
CEOAS Student Advisory Committee 2009 - 2010

Volunteering

Science Fair Judge for Santa Fe Alliance for Science

Last updated on January 9, 2017.